

## APPENDIX A

### Summary of Test Conditions

This appendix includes a table which summarizes the setup and conditions of the tests conducted.

CONFIDENTIAL - SOURCE DATA

**Summary of Test Conditions, Organized by Scenario**  
**Appendix A**

Scenario No.	Test No.	Source Description	Source Details	Source Elevation	Source Location 1	Ignition Source	Igniter Location	Comments
1	20	Meker burner on side against manitile						
	21	Meker burner vertical				match		For all propane burners, vents were approximately half open and were adjusted to maintain blue flames
	22	Bunsen burner vertical, flame spreader tip	1.5 m below the ceiling	Standard				
	23	Meker burner, horizontal, 13 cm flame				butane flame		
	29	Bunsen burner, horizontal, 3 cm flame				butane flame		1.7 Lpm flowrate
	63							
	116							MIC malfunction
2	12					match		
	24							
	25	Heptane Pool Fire	100 mL in 7.7 x 7.7 x 2.2 cm pan	1.5 m below the ceiling	Standard			
	41					butane flame		
	53					butane flame		
	145					match		
	27							
3	28	JP-5 Pool Fire	50 mL in 7.7 x 7.7 x 2.2 cm pan	2.4 m below the ceiling	Standard	propane torch		
	30		25 mL					
	31							
	32							
4	33	JP-8 Pool Fire	25 mL in 7.7 x 7.7 x 2.2 cm pan	1.5 m below the ceiling	Standard	propane torch		
	34							
	35	Alcohol Pool Fire	50 mL in 7.7 x 7.7 x 2.2 cm pan	1.5 m below the ceiling	Standard	propane torch		
5	36		100 mL					
	37							
	38		150 mL					

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Source Type	Test No.	Source Description	Source Details	Source Elevation	Source Location	Ignition Source	Igniter Location	Comments
6	15	Smoldering Mattress	15 x 15 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets	1.5 m below the ceiling	Standard	300W glocoil (54.5 volts)	On top of mattress	
7	16	Flaming Mattress (Foam only)	15 x 6 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets.	1.5 m below the ceiling	Standard	Horizontal Meker burner with wing tip, 13 cm flame	9 cm from mattress	
8	17	Flaming Mattress (Loose Bedding)	15 x 15 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets. 8 cm blanket hanging loose in front of mattress	1.5 m below the ceiling	Standard	Horizontal Meker burner with wing tip, 13 cm flame	9 cm from mattress	
9	10	Flaming Mattress (Tucked Bedding)	15 x 15 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets. Bedding completely surrounded mattress	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip, 8 cm flame	1.5 cm from mattress	
10	13	Flaming Mattress (Tucked Bedding)	15 x 15 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets. Bedding completely surrounded mattress	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip, 8 cm flame	1 cm from mattress	
11	39	Laundry Pile	1 towel, 1 boxers, 1 briefs, 1 t-shirt	2.4 m below the ceiling	Standard	Horizontal Meker burner with wing tip	Edge of pile	CO (mV) sensor not working
12	40	Laundry Pile	1 towel, 1 boxers, 1 briefs, 1 t-shirt	2.4 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip, 2.5 cm flame	On top of pillow	Photoelectric malfunction
13	66	Smoldering Pillow	24.5 x 32 cm pillow, 26 x 34 cm case, one short edge of case open	1.5 m below the ceiling	Standard	300 watt glocoil (54.5 volts)	Beneath pillow on wood platform	SO <sub>2</sub> sensor not responding
14	48	Smoldering Pillow	22 x 34 cm pillow with case	1.5 m below the ceiling	Standard	0.61 m from North wall, 1.83 m from East wall	On top of pillow	
15	49	Smoldering Pillow			Standard	Horizontal Meker burner with wing tip	Edge of pile	
16	50							
17	55							
18	54							
19	57							

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Source Type	Test No.	Source Description	Source Details	Source Elevation	Source Location	Ignition Source	Igniter Location	Comments
12	99	LSDSGU-14 (6 cables per bundle, center cable 33 cm long, others 20 cm long)			Standard	Welder initially at 340 A, increased to 600 A		Center cable charged
	103							
	104							
13	100	Smoldering Electrical Cable	1.5 m below the ceiling		Standard	Welder initially at 340 A, increased to 550 A		Center cable charged
	101							
	102							
14	105	LSTPNW-1-1/2 (10 cables per bundle, all 33 cm long)			Standard	Welder initially at 340 A, decreased to 250 A	MIC re-calibrated, center cable charged	Center cable charged
	106							
	107							
15	110	LSDSGU-14 (6 cables per bundle, center cable 33 cm long, others 20 cm long)			Standard	Welder at 250 A		Center cable charged, cables heated ohmically by welder at 500 A
	111							
	112							
16	113	Flaming Electrical Cable	1.5 m below the ceiling		Standard	Propane torch		Center cable charged, cables heated ohmically by welder at 600 A
	114							
	115							
17	109	LSDSGU-50 (1 cable per bundle)			Standard	Fire grew too quickly, SO <sub>2</sub> sensor not responding		Center cable charged, cables heated ohmically by welder at 600 A
	58							
	59							
18	60	Office Trash Can	10 crumpled paper towels, 10 crumpled sheets of paper, 5 flat sheets of paper, plastic trash bag	2.4 m below the ceiling	Standard	Dropped in trash can		SO <sub>2</sub> sensor not responding
	61							
	62							

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Source Type	Test No.	Source Description	Source Details	Elevation	Source Location	Ignition Source	Igniter Location	Comments
	117	NH elastomeric foam, rewettable glass lagging, chlorinated Alkyd white paint, 20.3 cm long	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip	On side of sample, <1 cm from insulation	MIC malfunction	MIC malfunction
19	118	Pipe insulation fire (NH Armallex)						MIC malfunction
	119							MIC malfunction
	120							MIC malfunction, lagging was cut before test (i.e., sliced)
	121	NH elastomeric foam, rewettable glass lagging, chlorinated Alkyd white paint, soaked with lubricating oil, 20.3 cm long	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip	On side of sample, <1 cm from insulation	Insulation coated in oil 4 days prior to test, MIC malfunction	Insulation coated in oil 4 days prior to test, MIC malfunction
20	122	Pipe insulation coated with oil fire (NH Armallex)	Calcium silicate insulation with glass cloth lagging, painted, 20.3 cm long	1.5 m below the ceiling	Horizontal Bunsen burner with wing tip, 2.54 cm flame	On side of sample, <1 cm from insulation	Insulation coated in oil 4 days prior to test	Insulation coated in oil 4 days prior to test
	123							
21	127	Pipe insulation fire (Calcium Silicate)	Calcium silicate insulation with glass cloth lagging, painted, 20.3 cm long	1.5 m below the ceiling	Horizontal Bunsen burner with wing tip, 2.54 cm flame	On side of sample, <1 cm from insulation		
	128							
	129							
	124	Pipe insulation coated with oil fire (Calcium Silicate)	Calcium silicate insulation with glass cloth lagging, painted, soaked with lubricating oil, 20.3 cm long	1.5 m below the ceiling	Horizontal Bunsen burner with wing tip, 2.54 cm flame	On side of sample, <1 cm from insulation	Insulation coated in oil 5 days prior to test	Insulation coated in oil 5 days prior to test
22	125							
	126							
	14	Polyimid Acoustic Insulation	Relley Benton insulation, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Horizontal Meker burner with wing tip, 13 cm flame	On side, 9 cm from insulation	
23	46		Relley Benton insulation, 20 cm wide x 30 cm high				On side, 2 cm from insulation	
	47							SO <sub>2</sub> sensor not working
	64							
	11	Nomex Honeycomb Wall Panel (TODCO)	Todco wallboard, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Meker burner with wing tip, 13 cm flame	On side, 9 cm from material	
24	19		Todco wallboard, 10 cm wide x 30.5 cm high					Burners were horizontal
	42							
	43							
	44	Nomex Honeycomb Wall Panel (Hexcel)	Hexcel panel, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip	On side, 1.5 cm from material	
25	45							
	65	Acoustical Insulation with out face material	Acoustical insulation, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Bunsen Burner with wing tip, 2.54 cm flame	On side, 1 cm from material	SO <sub>2</sub> sensor not working

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Nuisance 1	75			1.5 m below the ceiling		Toaster		Toaster clamped in On position
	76	Burning Toast	Burning toast, 1 slice	Standard				Toaster clamped in On position, UL 2117 ion sensor not working
	77							Toaster does not pop up automatically
2	73	Normal Toasting	Normal toasting, 8 slices at once, 8 slices total	1.5 m below the ceiling	Standard	Two toasters used simultaneously		Toasters automatically pop up
	80		Normal toasting, 8 slices at once, 24 slices total					
3	81							
	89		Welding, 0.32 cm thick steel plate with 7018 rod					Compartment door not completely closed, welding lead running through doorway
4	90	Welding	2.4 m below the ceiling	Standard				
	91		Welding, 0.48 cm thick steel plate with 7018 rod					Door not completely closed, welding lead running through doorway, ion malfunction
5	85	Cutting Steel with Acetylene Torch	Cutting steel with acetylene torch	2.4 m below the ceiling	Standard			
	87							Sensors did not significantly change when door was left open, Simplex photoelectric detector replaced
6	88	Grinding Steel	Continuously grinding steel	2.4 m below the ceiling	Standard			
	74		Continuously grinding steel					
7	82	Grinding Cinder Block	Continuously grinding cinder block	2.4 m below the ceiling	Standard			
	83							
8	84	Cutting Lauan	Cutting Lauan with circular saw	2.4 m below the ceiling	Standard			
	92							
9	93	Burning Popcorn In Microwave	Burning popcorn in microwave, 12 minutes cook time	1.5 m below the ceiling	Standard			
	94							
10	95	Burning Popcorn In Microwave						
	96							
11	97							
	98							

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Source Type	Test No.	Source Description	Source Details	Source Elevation	Source Location	Igniter Source	Igniter Location	Comments
9	139	Gas Engine	Gas-powered power washer, 18 hp	Floor Level	Standard			
	140							
	141							
10	133	Electric Heaters and Light	1400 watt electric heater, set to maximum	1.5 m below the ceiling	Standard			Rival Model No. RT12/1
	134		Two 1400 watt electric heaters, set to maximum, one Halogen 500 watt worklight	3 m from North wall				Rival Model No. RT12/1 electric heater, Regent Halogen worklight
	135							
	136							
11	137	People Talking	5 people talking	1.2 m below the ceiling	Under sensor array			
	138		4 people talking					
12	130		6 cigarettes smoked, 1 at a time					
	131		7 cigarettes smoked, 1 at a time					
	132	Cigarette Smokers	12 cigarettes smoked, 2 at a time					
	142		12 cigarettes smoked, 4 people smoking at once	1.2 m below the ceiling	Under sensor array			Parliament Lights cigarettes
	143		14 cigarettes smoked, 4 people smoking at once					
	144		14 cigarettes smoked, 4 people smoking at once					

Notes:

1. Standard source location was centered in the compartment, 1 m from the North-end wall.